**Course: 8th Math CCSS Standard Number(s): 8.EE.3 Day:**

**Unit # and Title:** Estimation and Comparing with Scientific Notation **Block(s)/Period(s): 1 2 3 4 5 6**

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| **Unit Essential Question(s):** | Why would you find rational approximations of irrational numbers? | | |
| **Learning Target(s)**  **“I can statements”** | * I can write an estimation of a large quantity by expressing it as the product of a single-digit number and a positive power of ten. * I can write an estimation of a small quantity by expressing it as the product of a single-digit number and a negative power of ten. | | |
| **Essential Vocabulary** | * irrational number * exponent * laws of exponents * power of 10 * rational number * real numbers * repeating decimal * scientific notation * standard form of a number * terminating decimal * truncate | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| * **LCD Projector** * **White board /w markers** * **Scientific Notation Number line handout.** * **Overhead scientific calculator.** * **Holt McDougal Online Teachers resources for Chapter 3.** | | * **Calculator** * **Paper and Pencil** |
| **8 Mathematical Practices:** | | | |
| 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics. | | 5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** |  | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | **(ME ) Scientific Notation Number line:**   * Students will be presented with anincomplete Scientific Notation Number line. The number line is incompletely constructed of base 10 terms and their respective place values in word form.The students will be given minimal assistance to complete this lesson perquisite task. After completing this activity, there should be a group discussion on the patterns that can be extracted from the completed activity.   **(WE) Decimal Laws for Scientific Notation (Intellectual Sparing):**   * (Positive Exponent) The number be multiplied by base 10 must be greater than one and less than 10. **Valid Range: 1.0 – 9.9**. * (Negative Exponent) The number be multiplied by base 10 must be greater than zero and less than 1. **Valid Range: .01 - .99**.   **(FEW)**  Students will form two person teams and work together construction scientific notation representation for the 10 highest paid athletes. In some cases the students will need to only construct on scientific notation representation for a given yearly salary. However in other cases the student groups will need to construct two, one for salary and one for endorsements.  **#4. LeBron James**    **Total Earnings between June 2011 to June 2012: $53 million**  **Salary/winnings: $13 million**  **Endorsements: $40 million ( Nike, McDonald’s, Coca-Cola, State Farm and others)**  **Sport: Basketball, Age: 27**    **#6. Kobe Bryant**    **Total Earnings between June 2011 to June 2012: $52.3 million**  **Salary/winnings: $20.3 million**  **Endorsements: $32 million**  **Sport: Basketball, Age: 33**    **#7. Phil Mickelson**    **Total Earnings between June 2011 to June 2012: $47.8 million**  **Salary/winnings: $4.8 million**  **Endorsements: $43 million (Callaway, Barclay’s, KPMG, Exxon, Rolex, Amgen/Pfizer)**  **Sport: Golf, Age: 41**    **#8. David Beckham**    **Total Earnings between June 2011 to June 2012: $46 million**  **Salary/winnings: $9 million**  **Endorsements: $37 million (Burger King, Sainsbury’s, Samsung)**  **Net Worth: £160 million ($260m) – As of April 2012, according to the Sunday Times Rich List**  **Sport: Football, Age:37**    **#9 Cristiano Ronaldo**    **Total Earnings between June 2011 to June 2012: $42.5 million**  **Salary/winnings: $20.5 million**  **Endorsements: $22 million (Nike, Castrol, Konami and others)**  **Sport: Football, Age: 27**    After completing this activity, there should be a group discussion on the patterns that can be extracted from the completed activity.  **(YOU)Salaries to Scientific Notation:**  **Holt: Chapter 3 Exponents and Roots ~ lesson 3 Scientific Notation**  **Practice and Note taking**   1. **Puzzles, Twisters, and Teasers.** 2. **Scientific Notation Practice C.** | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Holt: Chapter 3 Exponents and Roots ~ lesson 3 Scientific Notation**  **Practice and Note taking**   1. **Review for Mastery** | | |
| **Assessment/Homework** | **Holt: Chapter 3 Exponents and Roots ~ lesson 3 Scientific Notation**  **Practice and Note taking**   1. **Challenge – Wild blue yonder** | | |
| **Extending/Refining** | **Holt: Chapter 3 Exponents and Roots ~ lesson 3 Scientific Notation**  **Practice and Note taking**   1. **Problem Solving** | | |